1.   A method comprising:

identifying possible lines within a paragraph in a top-down pass through the

paragraph;

selecting a combination of the possible lines in a bottom-up pass through the

5   possible lines; and

specifying a layout for the paragraph according to the selected combination.

2.   The method of claim 1, further comprising:

calculating a penalty for each of the possible lines independently of the other

10   lines; and

selecting the combination of the possible lines based on the penalty calculations.

3.   The method of claim 1, wherein each of the possible lines yields a

downward sequence of possible lines, the method further comprising:

15   calculating, in the top-down pass, a penalty for each of the possible lines;

accruing the penalties over each of the downward sequences of the possible lines

in the top-down pass through the paragraph; and

before selecting the combination of the possible lines, pruning the possible lines

and associated sequences of possible lines for which the accrued penalty does not satisfy

20   a benchmark penalty.

4.   The method of claim 3, further comprising:

calculating the penalty for each of the possible lines as it is identified; and

terminating identification of additional possible lines in the downward sequence

25   associated with one of the possible lines in the event the accrued penalty for the

respective possible line does not satisfy the benchmark penalty.

5. The method of claim 3, wherein each of the possible lines remaining after pruning, yields an upward sequence of possible lines, the method further comprising:

accruing the penalties calculated in the top-down pass for each of the upward sequences of the possible lines; and

5 selecting as the combination of the possible lines, in the bottom-up pass, those possible lines for which the accrued penalty is lowest.

6. The method of claim 5, wherein the penalty calculation for each of the possible lines includes penalties based on the width of the respective line relative to the

10 width of an applicable baseline.

7. The method of claim 6, wherein the width of the applicable baseline varies between different baselines.

15 8. The method of claim 7, wherein the size of text within the different baselines varies.

9. The method of claim 1, wherein the paragraph is contained with a paragraph cell having an arbitrary shape.

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10. A computer-readable medium carrying program code operable to cause a programmable processor to:

identify possible lines within a paragraph in a top-down pass through the paragraph;

25 select a combination of the possible lines in a bottom-up pass through the possible lines; and

specify a layout for the paragraph according to the selected combination.

11. The computer-readable medium of claim 10, wherein the program code is operable to cause a programmable processor to:

calculate a penalty for each of the possible lines independently of the other lines; and

5   select the combination of the possible lines based on the penalty calculations.

12. The computer-readable medium of claim 10, wherein each of the possible lines yields a downward sequence of possible lines, and the program code is operable to cause a programmable processor to:

10   calculate, in the top-down pass, a penalty for each of the possible lines;

accrue the penalties over each of the downward sequences of the possible lines in the top-down pass through the paragraph; and

before selecting the combination of the possible lines, prune the possible lines and associated sequences of possible lines for which the accrued penalty does not satisfy

15   a benchmark penalty.

13. The computer-readable medium of claim 12, wherein the program code is operable to cause a programmable processor to:

calculate the penalty for each of the possible lines as it is identified; and

20   terminate identification of additional possible lines in the downward sequence associated with one of the possible lines in the event the accrued penalty for the respective possible line does not satisfy the benchmark penalty.

14. The computer-readable medium of claim 12, wherein each of the possible

25   lines yields an upward sequence of possible lines, and the program code is operable to cause a programmable processor to:

accrue the penalties calculated in the top-down pass for each of the upward sequences of the possible lines; and

select as the combination of the possible lines, in the bottom-up pass, those

30   possible lines for which the accrued penalty is lowest.

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15. The computer-readable medium of claim 14, wherein the penalty calculation for each of the possible lines includes penalties based on the width of the respective line relative to the width of an applicable baseline.

16. The computer-readable medium of claim 15, wherein the width of the applicable baseline varies between different baselines.

17. The computer-readable medium of claim 16, wherein the size of text within the different baselines varies.

18. The computer-readable medium of claim 1, wherein the paragraph is contained with a paragraph cell having an arbitrary shape.

19. A system comprising:

means for identifying possible lines within a paragraph in a top-down pass through the paragraph;

means for selecting a combination of the possible lines in a bottom-up pass through the possible lines; and

means for specifying a layout for the paragraph according to the selected combination.

20. The system of claim 19, further comprising:

means for calculating a penalty for each of the possible lines independently of the other lines; and

means for selecting the combination of the possible lines based on the penalty calculations.

21. The system of claim 19, wherein each of the possible lines yields a downward sequence of possible lines, the system further comprising:

means for calculating, in the top-down pass, a penalty for each of the possible lines;

5 means for accruing the penalties over each of the downward sequences of the possible lines in the top-down pass through the paragraph; and

means for pruning, before selecting the combination of the possible lines, the possible lines and associated sequences of possible lines for which the accrued penalty does not satisfy a benchmark penalty.

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22. The system medium of claim 21, further comprising:

means for calculating the penalty for each of the possible lines as it is identified; and

means for terminating identification of additional possible lines in the downward

15 sequence associated with one of the possible lines in the event the accrued penalty for the respective possible line does not satisfy the benchmark penalty.

23. The system of claim 22, further comprising:

means for calculating the penalty for each of the possible lines as it is identified;

20 and

means for terminating identification of additional possible lines in the downward sequence associated with one of the possible lines in the event the accrued penalty for the respective possible line does not satisfy the benchmark penalty.

25 24. The system of claim 22, wherein each of the possible lines yields an upward sequence of possible lines, the system further comprising:

means for accruing the penalties calculated in the top-down pass for each of the upward sequences of the possible lines; and

means for selecting as the combination of the possible lines, in the bottom-up

30 pass, those possible lines for which the accrued penalty optimal is lowest.

25. The system of claim 24, wherein the penalty calculation for each of the possible lines includes penalties based on the width of the respective line relative to the width of an applicable baseline.

5   26. The system of claim 25, wherein the width of the applicable baseline varies between different baselines.

27. The system of claim 26, wherein the size of text within the different baselines varies.

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28. The system of claim 19, wherein the paragraph is contained with a paragraph cell having an arbitrary shape.

29. A method comprising:

15   identifying possible lines within a paragraph in a top-down pass through the paragraph, each of the possible lines yielding a downward sequence of additional possible lines;

calculating, in the top-down pass, a penalty for each of the possible lines independently of the other lines;

20   accruing the penalties over each of the downward sequences of the possible lines in the top-down pass;

pruning the possible lines and associated sequences of possible lines for which the accrued penalty does not satisfy a benchmark penalty;

selecting a combination of the possible lines remaining after the pruning in a

25   bottom-up pass through the possible lines based on penalties accrued over upward sequences of the possible lines; and

specifying a layout for the paragraph according to the selected combination.

30.   The method of claim 29, the method further comprising:

calculating the penalty for each of the possible lines as it is identified; and

means for terminating identification of additional possible lines in the downward

sequence associated with one of the possible lines in the event the accrued penalty for the

5   respective possible line does not satisfy the benchmark penalty.

31.   The method of claim 29, wherein the penalty calculation for each of the

possible lines includes penalties based on the width of the respective line relative to the

width of an applicable baseline.

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32.   The method of claim 31, wherein the width of the applicable baseline

varies between different baselines.

33.   A computer readable medium carrying program code operable to cause a

15   programmable processor to:

identify possible lines within a paragraph in a top-down pass through the

paragraph, each of the possible lines yielding a downward sequence of additional

possible lines;

calculate, in the top-down pass, a penalty for each of the possible lines

20   independently of the other lines;

accrue the penalties over each of the downward sequences of the possible lines in

the top-down pass;

prune the possible lines and associated sequences of possible lines for which the

accrued penalty does not satisfy a benchmark penalty;

25   select a combination of the possible lines remaining after the pruning in a

bottom-up pass through the possible lines based on penalties accrued over upward

sequences of the possible lines; and

specify a layout for the paragraph according to the selected combination.

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34. The computer-readable medium of claim 33, wherein the program code is operable to cause a programmable processor to:

calculate the penalty for each of the possible lines as it is identified; and

terminate identification of additional possible lines in the downward sequence

5 associated with one of the possible lines in the event the accrued penalty for the respective possible line does not satisfy the benchmark penalty.

35. The computer-readable medium of claim 33, wherein the penalty calculation for each of the possible lines includes penalties based on the width of the

10 respective line relative to the width of an applicable baseline.

36. The computer-readable medium of claim 33, wherein the width of the applicable baseline varies between different baselines.

15 37. A system comprising:

means for identifying possible lines within a paragraph in a top-down pass through the paragraph, each of the possible lines yielding a downward sequence of additional possible lines;

means for calculating, in the top-down pass, a penalty for each of the possible

20 lines independently of the other lines;

means for accruing the penalties over each of the downward sequences of the possible lines in the top-down pass;

pruning the possible lines and associated sequences of possible lines for which the accrued penalty does not satisfy a benchmark penalty;

25 selecting a combination of the possible lines remaining after the pruning in a bottom-up pass through the possible lines based on penalties accrued over upward sequences of the possible lines; and

specifying a layout for the paragraph according to the selected combination.

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38. The system of claim 37, further comprising:

means for calculating the penalty for each of the possible lines as it is identified; and

means for terminating identification of additional possible lines in the downward

5   sequence associated with one of the possible lines in the event the accrued penalty for the respective possible line does not satisfy the benchmark penalty.

39. The system of claim 37, wherein the penalty calculation for each of the possible lines includes penalties based on the width of the respective line relative to the

10   width of an applicable baseline.

40. The system of claim 37, wherein the width of the applicable baseline varies between different baselines.

15   41.   A method comprising:

defining a paragraph cell for layout of a paragraph, the paragraph cell including a sequence of baselines for placement of lines of text information, wherein at least some of the baselines have different widths;

identifying possible lines within the paragraph in a top-down pass through the

20   paragraph, each of the possible lines being characterized by a line-start and yielding a downward sequence of additional possible lines at the baselines within the paragraph;

calculating, in the top-down pass, a penalty for each of the possible lines;

accruing the penalties over each of the downward sequences of the possible lines in the top-down pass;

25   pruning the possible lines and associated downward sequences of possible lines for which the accrued penalty does not satisfy a benchmark penalty;

selecting a combination of the possible lines remaining after the pruning in a bottom-up pass through the possible lines based on penalties accrued over upward sequences of the possible lines; and

30   specifying a layout for the paragraph according to the selected combination.

42. A computer readable medium carrying program code operable to cause a programmable processor to:

define a paragraph cell for layout of a paragraph, the paragraph cell including a sequence of baselines for placement of lines of text information, wherein at least some of

5 the baselines have different widths;

identify possible lines within the paragraph in a top-down pass through the paragraph, each of the possible lines being characterized by a line-start and yielding a downward sequence of additional possible lines at the baselines within the paragraph;

calculate, in the top-down pass, a penalty for each of the possible lines;

10 accrue the penalties over each of the downward sequences of the possible lines in the top-down pass;

prune the possible lines and associated downward sequences of possible lines for which the accrued penalty does not satisfy a benchmark penalty;

select a combination of the possible lines remaining after the pruning in a

15 bottom-up pass through the possible lines based on penalties accrued over upward sequences of the possible lines; and

specify a layout for the paragraph according to the selected combination.

43. A method comprising:

20 identifying a subset of the possible lines within a paragraph in a top-down pass through the paragraph;

selecting a combination of the possible lines from the identified subset in a bottom-up pass through the subset of possible lines; and

specifying a layout for the paragraph according to the selected combination.

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44.   A computer readable medium carrying program code operable to cause a programmable processor to:

identify a subset of the possible lines within a paragraph in a top-down pass through the paragraph;

5   select a combination of the possible lines from the identified subset in a bottom-up pass through the subset of possible lines; and

specify a layout for the paragraph according to the selected combination.

45.   A method comprising:

10   defining a paragraph layout for a paragraph of text;

detecting a change to the paragraph of text, wherein the change includes at least one of a change to the text and a change to a paragraph cell in which the text is positioned; and

globally redefining the paragraph layout in real time in response to the detected

15   change.

46.   The method of claim 45, wherein the change includes at least one of an addition, deletion, and modification of the text.

20   47.   The method of claim 45, wherein the change includes at least one of a change in the size and shape of the paragraph cell.

48.   The method of claim 45, wherein the change includes at least one of the addition, deletion, and modification of imagery within the paragraph cell.

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49.   The method of claim 45, wherein globally redefining the paragraph layout includes:

identifying possible lines within the paragraph in a top-down pass through the paragraph;

5   selecting a combination of the possible lines in a bottom-up pass through the possible lines; and

specifying the redefined paragraph layout according to the selected combination.

50.   A computer readable medium carrying program code operable to cause a programmable processor to:

define a paragraph layout for a paragraph of text;

detect a change to the paragraph of text, wherein the change includes at least one of a change to the text and a change to a paragraph cell in which the text is positioned; and

15   globally redefine the paragraph layout in real time in response to the detected change.

51.   The computer readable medium of claim 50, wherein the change includes at least one of an addition, deletion, and modification of the text.

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52.   The computer readable medium of claim 50, wherein the change includes at least one of a change in the size and shape of the paragraph cell.

53.   The computer readable medium of claim 50, wherein the change includes at least one of the addition, deletion, and modification of imagery within the paragraph cell.

54.   The computer readable medium of claim 50, wherein the globally redefinition of the paragraph layout includes:

identifying possible lines within the paragraph in a top-down pass through the paragraph;

5   selecting a combination of the possible lines in a bottom-up pass through the possible lines; and

specifying the redefined paragraph layout according to the selected combination.

55.   A method comprising:

10   compiling sequences of possible lines within a paragraph for generation of a paragraph layout;

calculating a penalty for each of the possible lines;

accruing the penalties calculated for each of the possible lines in each of the sequences in the course of compiling the sequences;

15   comparing each of the accrued penalties to a benchmark penalty corresponding to a known, complete paragraph layout; and

when the accrued penalty for one of the sequences does not satisfy the benchmark penalty, terminating further compilation of the respective sequence.

20   56.   A computer-readable medium carrying program code operable to cause a programmable processor to:

compile sequences of possible lines within a paragraph for generation of a paragraph layout;

calculate a penalty for each of the possible lines;

25   accrue the penalties calculated for each of the possible lines in each of the sequences in the course of compiling the sequences;

compare each of the accrued penalties to a benchmark penalty corresponding to a known, complete paragraph layout; and

when the accrued penalty for one of the sequences does not satisfy the benchmark

30   penalty, terminate further compilation of the respective sequence.

57.   A method comprising:

building a complete paragraph layout solution by expanding partial paragraph layout solutions;

comparing a penalty for each of the partial paragraph layout solutions to a

5   benchmark penalty corresponding to a known, complete paragraph layout solution; and

in the event the penalty for one of the partial paragraph layout solutions does not satisfy the benchmark penalty, terminating further expansion of the respective partial paragraph layout solution.

10   58.   A computer-readable medium carrying program code operable to cause a programmable processor to:

build a complete paragraph layout solution by expanding partial paragraph layout solutions;

compare a penalty for each of the partial paragraph layout solutions to a

15   benchmark penalty corresponding to a known, complete paragraph layout solution; and

in the event the penalty for one of the partial paragraph layout solutions does not satisfy the benchmark penalty, terminate further expansion of the respective partial paragraph layout solution.

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